Grant Request Information

Title of Project
Evaluating and Prioritizing Meadow Restoration in the Sierra

Total Amount Requested	$ 157,000.00
Matching Contributions Proposed	$ 157,000.00
Proposed Grant Period	11/01/2009 - 05/30/2011

Project Description
This project will promote Sierra meadow restoration via health assessments, prioritization of restoration efforts, analysis of restoration methods, and through standard data collection and reporting.

Project Abstract
Over the last ten years, there have been a series of meadow restoration demonstration projects in the Sierra resulting in initial quantifiable results indicating that large scale meadow restoration in the Sierra will likely provide multiple benefits including water supply, water quality and habitat. With assistance from NFWF and others, this work is now proceeding to a second phase of full-scale implementation across the Sierra. In order to leverage the necessary funding to make a landscape-level impact, and efficiently learn from these restoration experiences, there is a need to come to an agreement around four dimensions of this future work:

1) What meadows are there and how are they doing?
2) Which ones should we restore or protect?
3) How should we restore or protect them?
4) Did the restoration succeed and can we do better next time?

The objectives of this project entitled: Evaluating and Prioritizing Meadow Restoration in the Sierra is to address these four questions in a collaborative manner.

Organization and Primary Contact Information

Organization	American Rivers, Inc.
Organization Type	Non-profit Corporation
Organization Web Address	www.americanrivers.org
Organization Phone	202-347-7550
Street Line 1	1101 14th Street, NW
City, State, Country Postal Code	Washington, District of Columbia, North America - United States 20005
Region (if international)	
Organization Congressional District	
Tax Status	Eligible
Tax ID	237305963
Primary Contact	Dr. Elizabeth Soderstrom
Position/Title	Senior Director of Conservation
Street Line 1	432 Broad Street
Street Line 2	432 Broad Street
City, State, Country Postal Code	Nevada City, California, North America - United States 95959
Region (if international)	
Phone and E-mail	530-478-5694 x; esoderstrom@americanrivers.org
Keywords	Conservation Action; Conservation Threat; Land Ownership; Species; Major Habitat Type

Sub-keywords	Action - Land/Water Management; Action - Species Management; Action - Education & Awareness; Threat - Human Intrusions & disturbance; Threat - Natural System Modifications; Threat - Invasive & Other Problematic Species & Genes; Threat - Climate Change & Severe Weather; U.S. Forest Service; Private - Other; Private – Agricultural; Fish; Plant; Invertebrate; Reptile; Freshwater - Wetland; Freshwater - Rivers, lakes and streams and riparian zone; Terrestrial - Grasslands
Other Keyword(s)	High Altitude Wet Meadows

Outcomes and Indicators

Long Term Conservation Outcome(s)

By 2015 this project will result in:financial resources used to restore priority meadows; appropriate restoration methods broadly applied; and benefits of restoration used to leverage further support.

Outcome Indicators and Units of Measure:	Other (Meadows assessed - # of meadows assessed for size and condition)
Baseline:	10
Value at Grant Completion:	50
Long-term Value:	400
Year Long-term Value will be Achieved:	2015
Outcome Indicators and Units of Measure:	Other (Watersheds with meadow prioritization plans- # of watersheds with meadow prioritization plans)
Baseline:	1
Value at Grant Completion:	3
Long-term Value:	12
Year Long-term Value will be Achieved:	2015
Outcome Indicators and Units of Measure:	Other (Restoration techniques - # of restoration techniques understood)
Baseline:	1
Value at Grant Completion:	7
Long-term Value:	12
Year Long-term Value will be Achieved:	2015
Outcome Indicators and Units of Measure:	Other (Benefits validated - # of benefits validated)
Baseline:	0
Value at Grant Completion:	2
Long-term Value:	7
Year Long-term Value will be Achieved:	2015
Outcome Indicators and Units of Measure:	Other (Financial resources leveraged - $ leveraged for Sierra meadow restoration)
Baseline:	$1 million
Value at Grant Completion:	$2 million
Long-term Value:	$20 million
Year Long-term Value will be Achieved:	2018

Threats and Opportunities That Will Address the Outcome Above

This project is aimed at addressing two major threats that have been identified in the Sierra Nevada Meadow Restoration Business Plan, namely:
Threat 1: Past meadow degradation is self-perpetuating, and
Threat 2: Uncertainty over magnitude of ecosystem service benefits undermines efforts to expand restoration.

Threat/ Opportunity Indicator ID:	Threat 1
Threat/Opportunity Indicators:	Other (# of criterion developed to prioritize projects)
Baseline:	0
Value at Grant Completion:	8
Long-term Value:	8
Year Long-term Value will be Achieved:	2011
Threat/ Opportunity Indicator ID:	Threat 2
Threat/Opportunity Indicators:	Other (# of long-term indicators/performance measures identified to quantify benefits)
Baseline:	0
Value at Grant Completion:	5
Long-term Value:	5
Year Long-term Value will be Achieved:	2011

Activities That will be Used to Address Threats and/or Opportunities Listed Above

The following major activities will be performed to achieve the long-term indicators described above: Assess Meadow Health and Delineate Meadows; Develop Prioritization Methodology; Analyze Meadow Restoration Approaches and Techniques; and Standardize Meadow Restoration Data Collection and Reporting. These tasks build on previous work funded by USEPA and California Department of Water Resources that resulted in a draft methodology for assessing meadow health, and a Sierra Meadows Geophysical Database. Each of these activities will involve stakeholder and technical review at each step; the project team will convene working groups, roundtables, and individual consultations to ensure appropriate buy-in and review.

Project Location Information

Project Location Description	This project will be Sierra-wide, but will test the prioritization methodology in the Yuba and Mokelumne Watersheds.
Project Country(ies)	North America - United States
Project State(s)	California
Project Congressional District(s)	District 4 (CA)

Permits and Approvals

Proposed Budget

	Units	Cost Per Unit	Total
Salaries and Benefits			
Senior Director of Conservation	440	$87.00	$38,280.00
Senior River Scientist	110	$65.00	$7,150.00
Monitoring Specialist	267	$38.00	$10,146.00
Program Associate	360	$39.00	$14,040.00
Total Salaries and Benefits			$69616.00
Equipment			
Total Equipment			$0
No equipment will be purchased as a part of this project; all necessary supplies are under $5,000.			
Contractual Services			
Stillwater Sciences Senior Riparian Ecologist	430	$138.00	$59,340.00
University of California, Davis Restoration Ecologist	440	$43.00	$18,920.00
Total Contractual Services			$78260.00
Supplies and Materials			
Garmin GPS 76 Series	2	$1,200.00	$2,400.00
Olympus Stylus 850 SW waterproof digital camera	1	$180.00	$180.00
RL4 Burton Headlamp	3	$30.00	$90.00
CAMELBAK® TransFormer Hydration Pack, Black	2	$148.00	$296.00
Field-Pro™ Mesh Vests	3	$56.00	$168.00
DT430 Handheld with MSR hand held computer	1	$1,000.00	$1,000.00
Alps Taurus Four -person tent	1	$160.00	$160.00
Coleman 424 Dual-Fuel 2 Burner Stove	1	$70.00	$70.00
SUUNTO® Self Damping Clinometers	1	$128.00	$128.00
AMS Turf Soil Profiler	1	$140.00	$140.00
YSI Pro Plus Multiparameter Meter	1	$957.00	$957.00
SolarRoll Rollable Solar Panels	1	$500.00	$500.00
HIKER™ Water Purifier	1	$100.00	$100.00
Total Supplies and Materials			$6189.00
Printing			
Total Printing			$0
Printing costs will be covered by American Rivers.			
Travel			
American Rivers Staff Travel	1050	$.55	$577.50
Stillwater Sciences Staff Travel	1050	$.55	$577.50

University of California, Davis Staff Travel	1200	$.55	$660.00
Per Diem (food. lodging, and miscellaneous)	32	$35.00	$1,120.00
Total Travel			$2935.00
Travel budget estimates are based on American Rivers staff making approximately seven 150 mile round trips, Stillwater Sciences staff making approximately three 350 mile round trips, and University of California, Davis staff making approximately three 400 mile round trips. All travel will be done by car with 1-3 travelers per trip. Per Diem costs include food at $35 per person per day.			
Other			
Total Other			$0
Budget Grand Total			$157000.00

Matching Contributions

Amount:	$157,000.00
Type:	Cash
Status:	Application Submitted
Source:	Sierra Nevada Conservancy
Source Type:	Non-Federal
Description:	In February 2009, the project team applied for match funding to the Sierra Nevada Conservancy.

Total Amount of Matching Contributions **$**157,000.00

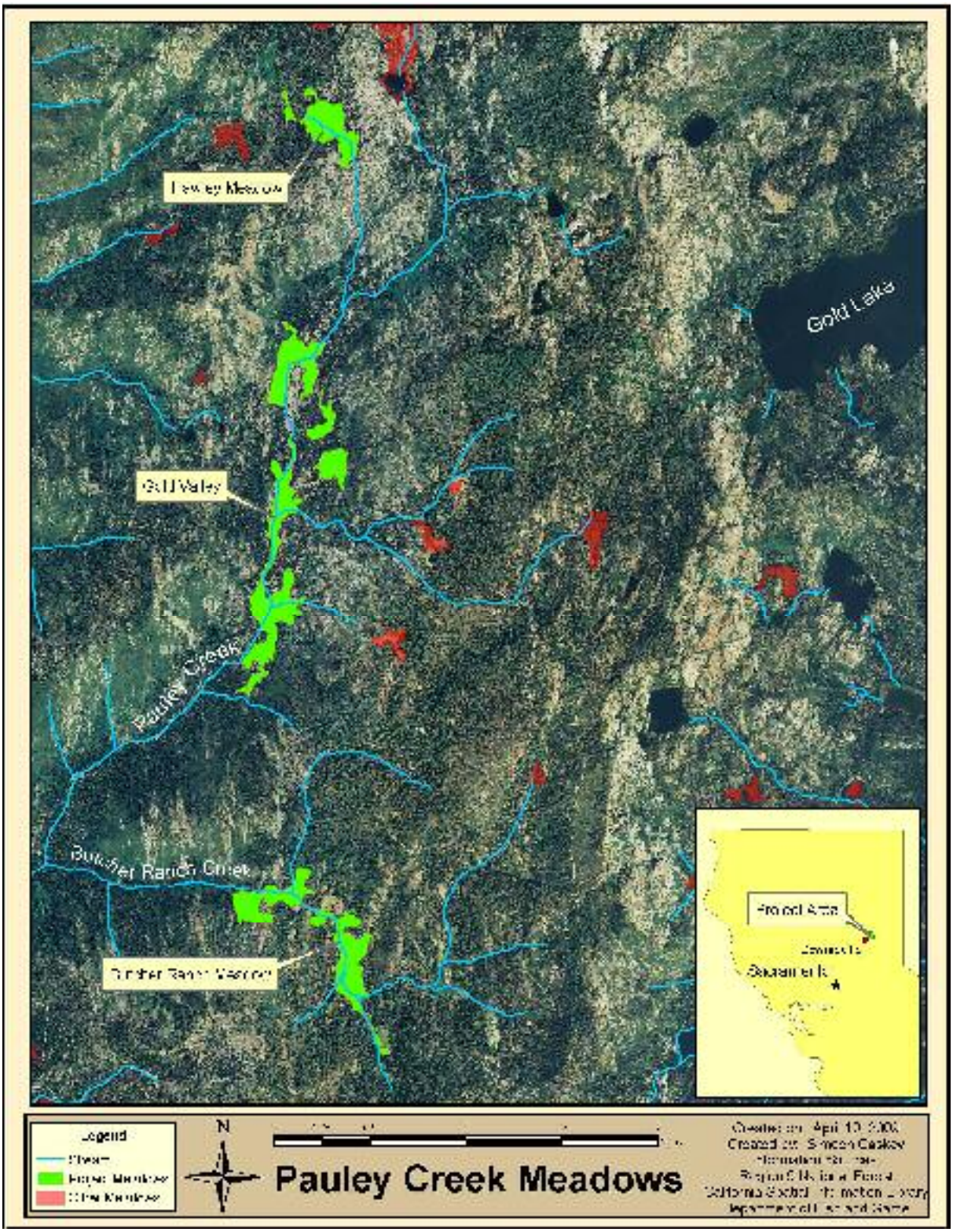
Applicant-identified Reviewer Information

The following pages contain the uploaded documents, in the order shown below, as provided by the applicant:

Statement of Litigation
Board of Trustees, Directors, or equivalent
Other Documents
Full Proposal Narrative
Project Map

The following uploads do not have the same headers and footers as the previous sections of this document in order to preserve the integrity of the actual files uploaded.

Project Map


Gold Lake
Gold Valley
Pauley Creek
Butcher Ranch Creek
Project Area
Pauley Creek Meadows
N

DOROTHY BALLANTYNE (MT) -- Former career in the financial services industry managing market research, joint ventures, and a direct response distribution system for a large insurance company. Dotty also started a family of mutual funds, provided international business consulting, and started an educational exchange program with Vilnius University in Lithuania.

RUSSELL DAGGATT (WA) -- A private venture investor and corporate advisor. Previously, practiced law with Preston Gates & Ellis in Seattle and Anderson Mori & Rabinowitz in Tokyo, Japan. In earlier "adventure capital" work, drawing on his active experience as a mountain climbing and river-rafting guide, Daggatt led the merger of the country's two top international adventure travel companies, Mountain Travel and Sobek Expeditions. (Elected 2004)

SYLVIA EARLE (CA) -- Called "Her Deepness" by the New Yorker and New York Times, Sylvia Earle is an oceanographer, explorer, author, and lecturer. She also is the Founder and Chairman of Deep Ocean Exploration and Research Inc. (DOER), Explorer in Residence and Leader of the Sustainable seas Expeditions at the National Geographic Society, Program Director for the Harte Research Institute at Texas A & M University, Corpus Christi, Director of Global Marine Conservation for Conservation International and formerly the Chief Scientist of the National Oceanic and Atmospheric Administration. (Elected 2003)

CAROLINE GABEL (MD) – In 1970 Caroline joined the staff of US Rep. John Blatnik, D-MN, Chair of the House Public Works Committee and author of the Clean Water Act of 1972, as well as the biennial WRDAs. She worked for EPA during the Carter years, and returned to the Hill with Rep. Jim Obertar, D-MN. She retired in 1999 and is currently President and CEO of The Shared Earth Foundation. She serves on the MD Critical Areas Commission for the Chesapeake Bay and Oceanic Bays, a State-level agency, and numerous non-profit Boards of which she chairs two. (Elected 2007)

RAY GARDENER (WA) -- Ray Gardner is Chairman of the Chinook Indian Nation and descends from the Wheelapa band of the Chinooks. Ray is also Chairman of the Natural Resources/Fisheries and Transportation committees, Vice Chairman of the Health Board, and Frisbie Scholarship board member. Ray is a recipient of the Peace and Friendship award from the State of Washington Historical Society for providing significant contributions to understanding the cultural diversity of the peoples of the state of Washington. He currently work in Washington State government for the Utilities and Transportation Commission, where he is a Transportation Specialist/ Investigator IV. (Elected 2007)

DAVID J. HAYES (DC) – Currently serves as **First Vice Chair.** National chair of the Environmental Department at the international law firm of Latham & Watkins, resident in Washington, D.C. Mr. Hayes also is a partner in the firm. He served during the Clinton Administration as Deputy Secretary of the Interior under Secretary Bruce Babbitt. (Elected 2002)

NORA HOHENLOHE (DC) -- Former career as an Associate at Dow, Lohnes & Albertson and as Associate Counsel for the National Geographic Society for ten years. She also serves on the board of the Montana History Foundation. (Elected 2008)

RICK HOLTON (MO) --. (Elected 2004)

TOM HUGHES (WA) – Currently serves as **Secretary.** Tom Hughes, former president of PhotoDisc, Inc. and of Northshore Publishing, has more than 19 years of experience in building cutting-edge high technology companies. Currently Hughes is a partner in Cedar Grove Investments, serves on the board of private companies and is an active in-city real estate investor and environmentally sensitive land developer. (Elected 2003)

LANDON JONES (NJ, MT) – Retired in April 2000 from Time Inc. as Vice President for Strategic Planning. Previous assignments during Mr. Jones' 30-year tenure at Time Inc. include managing editor of People Magazine. He is the author of

two books, including The Essential Lewis and Clark, published by HarperCollins in 2000. Other nonprofit board service includes the National Council of the Lewis and Clark Bicentennial. (Elected 2002)

LAURA KRACUM (IL) **--**Active in environmental causes in her home state of Illinois, frequently in grassroots volunteer efforts. Has traveled extensively to further her understanding of the natural world, including trips to the Amazon, Mongolia, Terra del Fuego, and Panama. In the mid-eighties, worked as a manager and lead analyst at Time, Inc. in Chicago and established a new documentation system and communication standards for the programming staff. (Elected 2006)

DEE LEGGETT (VA) -- With her husband Bob, is a cofounder of the Blue Ridge Center for Environmental Stewardship, an environmental conference, research, and education center being developed in Loudoun County, Virginia. Previously was a Principal with Birch and Davis, Associates, a healthcare consulting firm. Served 21 years on active duty in the Army in various roles in healthcare delivery and healthcare information systems development. (Elected 2000)

RICHARD LEGON (VA) -- Richard Legon is currently the president of the Governing Boards of Universities and Colleges (AGB). His experience working with boards in higher education and in other areas of the nonprofit world spans more than 30 years, much of it focused on the board's responsibilities in the area of fund-raising and finance. (Elected 2007)

LISEL LOY (DC) -- Senior advisor to the National Commission on Energy Policy. Previously served in the White House as the Assistant to the President and Staff Secretary for President Clinton and before that, served as Special Council to the Deputy Secretary at the Interior Department. (Elected 2006)

ROBERT MCDERMOTT, Jr. (VA) -- Partner at Jones Day, specializing in complex civil litigation, including environmental and toxic tort cases. Previously, served in the White House and Department of Justice. (Elected 2006)

JAMES O. MILLS (TN) -- Vice President for Development for Olan Mills, Inc. Prior to this, worked as a Research Associate with the South Carolina Institute of Archaeology and Anthropology, and as Co-Director of the American Expedition to Hierakonpolis, Egypt. (Elected 2006)

Z. CARTTER PATTEN, III (TN) – Co-founder and owner of Patten and Patten, Inc. and serves as Chairman of the firm. Mr. Patten is a professionally designated Chartered Financial Analyst and Chartered Investment Counselor. He has been active with many non-profit organizations in Southeast Tennessee and elsewhere with a focus on environmental and land use issues. (Elected 2001)

GORDON W. PHILPOTT (MO) -- Retired academic surgeon of Washington University, Edison Professor of Surgery of 30 years, now Emeritus professor. Currently active on the Alumni Board of Governs and the Medicine National Council. (Elected 2006)

ANNE H. SHIELDS (MD) – Retired Deputy Solicitor, acting Director of the Office of Surface Mining and the Chief of Staff to Secretary Bruce Babbitt. Prior to that, worked in the Environmental Division of the Department of Justice. (Elected 2006)

TOM SKERRITT (WA) -- Tom Skerritt, actor in the 1992 film about an American Family, A River Runs Through It, has agreed to join the Board of American Rivers. An Emmy winner for Best Actor for his starring role in the CBS award winning television classic, Picket Fences, Tom's filmography includes the original MASH, Harold and Maude, The Turning Point, Alien, Top Gun, Contact, The Other Sister, and most recently Bruce Willis', Tears of The Sun. (Elected 2003)

ALEX TAYLOR (GA) -- Alex Taylor is the Vice President and Business Manager of the Atlanta Journal Constitution Newspaper (Elected 2005)

EDWARD B. WHITNEY (NY, VT) – Currently serves as **Chairman.** Recently retired as an investment banker, Mr. Whitney had been with UBS Warburg LLC and its predecessor companies since 1969. Since 1997 he had been a senior member of the management team for the Global Corporate Finance Department and was dually based in New York City and London. He currently lives in New York City; Garrison, New York; and Barton, Vermont. (Elected 2002)

Updated June 1, 2009

Project Narrative:
Evaluating and Prioritizing Meadow Restoration in the Sierra

Instructions: Save this document on your computer and complete the narrative in the format provided. The final narrative should not exceed six (6) pages; do not delete the text provided below. Once complete, upload this document into the on-line application as instructed.

Background. Over the last ten years, there have been a series of meadow restoration demonstration projects in the Sierra (largely "pond and plug" in the Feather River Watershed) resulting in initial quantifiable results indicating that large scale meadow restoration in the Sierra will likely provide multiple benefits including water supply, water quality and habitat. With assistance from NFWF and others, this work is now proceeding to a second phase of full-scale implementation across the Sierra. In order to leverage the necessary funding to make a landscape-level impact, and efficiently learn from these restoration experiences, there is a need for the individuals and organizations who are involved in this exciting process to come to an agreement around four dimensions of this future work:

1) What meadows are there and how are they doing?
2) Which ones should we restore or protect?
3) How should we restore or protect them?
4) Did the restoration succeed and can we do better next time?

Project Objectives. The objectives of this project entitled: *Evaluating and Prioritizing Meadow Restoration in the Sierra* is to address these four questions in a collaborative manner. More specifically, this project will promote meadow restoration in the Sierra through: delineating meadows and assessing their health (question 1); developing and applying methods to prioritize meadow restoration work (question 2); assessing meadow restoration methods (question 3); and standardizing data collection and reporting for post-implementation monitoring (question 4).

This project is offered by a diverse and strong partnership including American Rivers, US Forest Service, Stillwater Sciences, UC Davis, South Yuba Citizens League, Foothill Conservancy, and Natural Heritage Institute. In addition, this work will be coordinated with actions led by USFS, Trout Unlimited, California Trout, and the Feather River CRM/Plumas Corp.

1. **Long-Term Conservation Outcome(s):** Elaborate on the long-term conservation outcome(s) summarized previously in the application; discuss what makes this outcome(s) achievable and important.

The long-term conservation outcomes associated with implementing this strategic and coordinated approach to meadow restoration in the Sierra include the following:

- A majority of meadows in the Sierra have been assessed to determine their location, size and condition.
- Prioritization methods have been developed and applied within watersheds.
- Financial resources have been focused on restoring Sierra meadows that show high benefits and lower costs.
- A range of meadow restoration methods has been implemented across the Sierra and we understand where, when and how they are most appropriately applied to yield maximum benefits.
- Results of meadow restoration efforts in the Sierra are quantified and reported in a consistent and comparable manner so that the benefits can be clearly articulated at a state and national policy level.
- Information is used to guide and leverage future investments so that we reach our goal of 60,000 acres of Sierra meadows restored in the next 6 years.
- Long-term comparable data sets revolving around key indicators of restoration impact are populated so that we can learn about which restoration approaches have worked where and why.
- We have the information to adaptively manage restored meadow systems over time, particularly in light of climate change predictions.

2. **Threats and/or Opportunities:** Elaborate on the relationship of threats and/or opportunities to the long-term conservation outcome(s) and describe which of these threats and/or opportunities will be addressed in the project.

As identified in the Sierra Nevada Meadow Restoration Business Plan, there are several threats to meeting long-term conservation outcomes through meadow restoration. This project directly addresses several of these threats which are

described below. The first threat is that past meadow degradation is self-perpetuating (Threat 1) which means that meadows can't restore themselves and that they will require active intervention to reach a restored state. In order to address this threat, several opportunities or activities have been identified in the Business Plan, including: 1) develop criteria to select which projects will be funded first; 2) develop standardized methodology for measuring impacts; 3) develop a watershed-specific, multi-criteria methodology for identifying priority meadows for preservation and/or restoration; and pilot methodology on subset of watersheds. The proposed project intends to implement all four of these activities (see workplan below) in order to address this threat.

In addition, the second threat identified in the Business Plan is: uncertainty over the magnitude of ecosystem service benefits undermines efforts to expand restoration. In order to leverage additional funding for meadow restoration, we need to demonstrate benefits to water supply, water quality, and flood control. However, current lack of information and disagreement about available evidence among the scientific community undermines the ability to make a case for restoration to state and federal agencies and the public. One strategy to help address this threat is to build scientific consensus (Strategy 2) and report on performance (Activity 5). This proposed project intends to develop a suite of performance measures/indicators that can be used across projects to measure and validate benefits to meadow restoration.

Importance of Work. The cost of no action associated with this project is high. Currently data collection associated with results of meadow restoration projects is proceeding without coordination – different metrics are being collected and analyzed using a range of techniques, and reported in often hard to find databases or reports. In most cases, monitoring does not continue much past the end of the project, and thus long-term data sets are not being developed. It can be like comparing apples to oranges when one is trying to understand impacts within and across watersheds, restoration methods, meadow types, etc. because a key set of indicators have not been chosen. This approach has been appropriate in the first phase of this work as we test out monitoring methods. Without coordination in the next, larger-scale phase, our work will be threatened with inefficiencies due to over- or under-collection of incompatible data sets. In addition, if we can't consistently report results, we will inhibit our ability to make state and national-level appeals for leveraged funding. Lastly, without comparable data sets, we will miss opportunities to learn about the impact of different methods applied at various scales across settings, and thus our ability to transform our experience into learning over time will be confounded by too much variability – a common problem in ecosystem management.

Similarly, in the Sierra, we have experimented with several meadow restoration techniques including geomorphic reconstruction ("pond and plug", gravel augmentation, check dams), vegetation restoration (reseeding, planting, stabilizing eroding banks), land management (burning, thinning), and grazing management (fencing, rotation, herding). As new groups increase their capacity and the ability to implement meadow restoration projects, they will need information regarding where, how and to what gain these restoration techniques have been applied. Without this compilation and analysis of information, new efforts will either have to "reinvent the wheel", expend unnecessary resources searching for this information, or risk applying inappropriate methods. Lastly, without methods to prioritize meadow restoration projects within watersheds and across the Sierra, we risk a reduction in restoration benefits because we could potentially invest scarce funds in meadow projects that are less likely to yield results.

3. **Activities:** Elaborate on the primary activities that will be employed through the grant. Explain how these activities address the threats, opportunities and/or conservation outcome(s) described above. How do these activities relate to established plans (management, conservation, recovery, etc.)?

Below we describe a detailed workplan that includes major tasks and subtasks aimed directly at meeting the threats and conservation outcomes described above. In addition, we provide information on deliverables per each task, including a schedule of each deliverable. This schedule assumes a November 1, 2009 start date and December 31, 2011 end date. Further, each task describes the project partners who are responsible for implementing the tasks and the methods that will be used. These tasks build on previous work funded by USEPA and California Department of Water Resources that resulted in a draft methodology for assessing meadow health, and a Sierra Meadows Geophysical Database. Each of these activities will involve stakeholder and technical review at each step; the project team will convene working groups, roundtables, and individual consultations to ensure appropriate buy-in and review. The project team is fully staffed, has strong working relationships and is ready to proceed once funding is made available. There are no outstanding issues that affect the project timeline.

Task 1. Management and Performance Measures

The project team recognizes that project management and administration is a critical aspect of a successful project. Under this task, American Rivers will take the lead in fiscal management, reporting requirements, finalizing the workplan, developing and managing subcontracts, convening project team meetings, developing and disseminating project information, and coordinating with the Nation Fish and Wildlife Foundation. Because this project involves multiple partners and calls for significant outside input, the project team will use a project management tool such as Desktop Connection to facilitate communications and project management.

1.1. Convene Project Team Meetings
1.2. Finalize Workplan and Budget
1.3 Draft and Finalize Subcontracts
1.4 Set up Internet-based Management System
1.5. Manage Project Budget
1.6 Submit Financial and Performance Reports
1.7 Draft and submit Final Report
1.8 Outreach and dissemination of project materials and results

Task 1 Deliverables	**Due Date**
Finalized Workplan and Budget	November 1, 2009
Signed Subcontracts/Grants with Project Partners	December 1, 2009
Financial and Performance Reports	April 15, 2009, October 15, 2010, April 15, 2011, October 15, 2011
Final Report Drafted	September 1, 2011
Final Report Finalized	November 1, 2011

Task 2: Assess Meadow Health and Delineate Meadows

Task 2 will assess meadow health/condition and delineate all the critical meadows that are accessible on public and private land in both the Yuba and Mokelumne River Watersheds. Using the Meadow Database developed in Phase II of this project, we will produce maps of all the meadows in each of the watersheds. From these maps, we will determine ownership and access. Landowners Access Agreements might need to be drafted, negotiated and signed for significant meadows or meadow complexes on private lands. One of the first subtasks will be to conduct field-level delineations of the meadows using a GPS. The meadows database has many inaccuracies regarding exact delineations and thus can't be used to determine extent of meadow coverage in the watershed or characterize meadows based on size. This subtask will rectify that situation. In addition, this task will develop and apply a rapid methodology to assess meadow health/condition and restoration potential. This methodology will be developed in coordination with the NFWF funded USFS work on determining hydrologic function. This task will be led by American Rivers, with assistance from UC Davis, Foothill Conservancy, SYRCL and both the Tahoe National Forest and the El Dorado National Forest.. Subtasks include:

2.1 From Meadow Database, map meadows in each watershed
2.2 Determine ownership and plan for assessing meadows (which one, order, etc)
2.3 Negotiate land owner access agreements if necessary
2.4 Draft meadow assessment methodology
2.5 Convene workgroup to finalize methodology
2.6 Recruit and train citizen volunteers to work with staff to assess meadow health
2.7 Using GPS, delineate meadows
2.8 Using short-term assessment methodology, assess meadow health
2.9 QA/QC data and re-train if necessary
2.10 Enter delineation and assessment information into database

Task 2 Deliverables	**Due Date**
Maps of Mokelumne and Yuba Meadows	March 15, 2010
Signed Landowner Access Agreements (if applicable)	April 1, 2010
Assessment Schedule for Each Watershed	May 1, 2010
Meadow Delineation Information Entered in Database	September 30, 2010
Assessment Data Entered in Database	September 30, 2010

Task 3. Develop Prioritization Methodology

Through this task, the Sierra meadows team will develop a prioritization methodology that includes stakeholder and technical participation for each step, a science-based framework for identifying areas supporting critical ecosystem functions, and a flexible means of weighing the relative importance of multiple factors. The goal of this task is to develop a watershed-specific multi-criteria methodology for identifying priority meadows for preservation and/or restoration. Because there is a range of

prioritization methodologies, none of which have been applied to meadow restoration, one of our first tasks will be to review these methodologies and decide on the one that best fits our needs in the Sierra. This science-based framework for prioritizing areas supporting critical ecosystem functions will provide a flexible means of weighing the relative importance of multiple factors. We will test this approach in both the Yuba and Mokelmne Watersheds and refine it based on this experience. This task will be lead by American Rivers with assistance from Stillwater Sciences, and UC Davis and includes the following subtasks:

3.1 Form Meadows Prioritization Methodology (MPM) Team
3.2 Review existing prioritization methodologies
3.3 Draft technical memo describing range of methodologies and recommending one approach
3.4 Consult with MPM Team and other interested stakeholders regarding recommended methodology
3.5 Finalize technical memo based on feedback
3.6 Tailor methodology to values, needs, and natural resources of each of the two watersheds. This step will involve identifying specific criteria and assigning relative weights to multiple factors.
3.7 Document multi-criteria prioritization methodology for each watershed

Task 3 Deliverables	Due Date
Technical memo presenting review of range of prioritization methodologies and those most fitting to the project area are identified.	January 1, 2010
Draft memo describing selected prioritization methodology	March 15, 2010
Finalized Prioritization Methodology Technical Memo	December 31, 2010
Document describing tailored multi-criteria methodology for each watershed	March 1, 2011

Task 4. Analyze Meadow Restoration Approaches and Techniques

This activity will first identify and briefly describe the various meadow restoration approaches and techniques, and will include a summary of relavant restoration project examples. For each such project, this summary will include goals of restoration, location (elevation, soils, geology, meadow type), size of treatment(s), land use and ownership, contact information, and monitoring data. This review will align techniques with meadow types and working assumptions of meadow conditions such as incision and channel-floodplain disconnect, conifer encroachment, or meadow revegetation. Next, the project team, to the extent possible, will assess overall success using pre- and post-monitoring data and compare changes to response variables such as vegetation cover, water level by season, habitat diversity/complexity, and water temperature. We will coordinate with TU and CalTrout who have proposed to review fish response to restoration efforts. If possible, the project team will also assess differences in vulnerability and resistance by technique (speed of response, resistance to geomorphic unraveling, vulnerability to invasive exotic species, and climate variations). Lastly, the team will assess constraints and opportunities on applying different techniques in different places, including ecological constraints (hydrology, vegetation, soil, scale, impacts to existing native species), financial/institutional (budget, time), social (e.g. tribal interests, existing land use, vandalism), and implementation (access, ownership). Subtasks include:

4.1 Review existing meadow restoration approaches and techniques
4.2 Assess Pre- and Post Monitoring Data from existing projects
4.3 Assess Technique Vulnerability and Resistance
4.4 Assess Constraints and Opportunities
4.5 Draft and Finalize Meadows Restoration Methods Analysis Report.

Task 4 Deliverables	Due Date
Meadows Restoration Methods Analysis Report	October 31, 2010

Task 5: Standardize Meadow Restoration Data Collection and Reporting

This activity will involve coming to consensus on two types of data collection, analysis and reporting. The first will involve protocols for monitoring short-term (1-3 years) project impacts. The second will involve protocols for monitoring long-term (4-10 years) impacts on a small set of key indicators. These activities will not only develop protocols for data collection, but also for data analysis and reporting – critical components of monitoring that are often overlooked. Lastly, the project team will develop a methodology and plan for regularly updating the NFWF meadow logic framework based on collective findings (e.g. meta-analysis across completed projects) and experiences. This plan will be drafted to ensure that the initial framework used to address meadow restoration impacts, threats, and opportunities remains current with our knowledge and experience. American Rivers will lead this task with assistance from Stillwater Sciences, and UC Davis.

5.1 Review existing methodologies for short-term impact analysis
5.2 Revise and draft data collection, analysis and reporting protocols for short term impacts
5.3 Define key indicators for long term impact analysis
5.4 Revise and draft data collection, analysis and reporting protocols for long term impacts
5.5 Convene workshop and vet methodologies

5.6 Revise methodologies based on comments
5.7 Field test and finalize methodology and protocols
5.8 Draft detailed instructions, including equipment list, and field sheets
5.9 Develop and present methodology for updating NFWF meadow logic framework

Task 5 Deliverables	Due Date
Draft Data Collection, Analysis and Reporting Protocols for Short Term Impacts	March 1, 2010
Definitions of Key Indicators	April 30, 2010
Draft Data Collection, Analysis and Reporting Protocols for Long Term Impacts	May 15, 2010
Detailed Instructions for Implementation	September 30, 2010
Methodology for Updating NFWF Logic Model	March 30, 2011

4.Outcomes and Indicators: Describe the general monitoring approach that will be used to assess progress on one or more of the indicators presented previously in the application. Please note any challenges or limitations you anticipate in conducting this monitoring or the interpretation of anticipated results.

This project is designed to monitor progress and impact of the project. In terms of monitoring progress, the Project Team will develop a suite of performance measures (Task 1) that include both output measures (e.g. deliverables, number of people consulted, number of meadows delineated, etc); and outcome indicators (e.g. number of watershed with prioritized meadow restoration plans, etc). We do not anticipate any difficulties in collecting or interpreting this data.

4. **Project Team:** List key individuals and describe their qualifications relevant for project implementation.

The project team is fully capable of carrying out all aspects of project management to ensure successful implementation. **American Rivers** will provide overall project management and technical skills and experience. **Elizabeth Soderstrom,** PhD, is the Senior Director of Conservation at American Rivers and has extensive experience leading collaborative projects in the international and domestic arenas. From Stanford University, Dr. Soderstrom received a B.A. in English Literature, a B.S. and M.S. in Biological Sciences. In addition, in 1994, she completed a Ph.D. in Wildlands Resource Science from UC Berkeley. Dr. Soderstrom will be the manager for this project. **Steve Rothert** is the Director of the California Regional Office, and in this position, he has played an important role in several watershed management efforts, including watershed assessment and restoration planning for Deer Creek, anadromous fish reintroduction feasibility studies in the Yuba River basin, fish passage barrier removals across California, and hydropower dam relicensings in the Klamath, Feather, Merced, and Yuba River basins. Steve holds a M.S. in water resources management from the University of California, Berkeley.

The **Natural Heritage Institute** is also fully staffed to implement this program. **Carson Cox** is a conservation biologist specializing in water resource policy and restoration of instream flows. He has also worked as a fisheries scientist and water resource regulator at the California Department of Fish and Game and the State Water Resources Control Board – Division of Water Rights. Carson has a Masters of Science degree in Conservation Biology from the University of Wisconsin – Madison, and a Master of Public Policy degree from the University of Michigan.

Stillwater Sciences will build on their experiences in earlier phases of this project and assist with the development of the assessment and prioritization methodology, as well as with evaluating restoration methods. **Amy Merrill, PhD,** has extensive experience in research and planning associated with Sierra ecosystems. She received her PhD from UC Berkeley.

University of California, Davis worked on the first phases of this project. **Sabra Purdy,** a graduate student in restoration ecology at UCD, worked over the past five years for the Center for Watershed Sciences at UC Davis, to develop and field testing initial measures of biotic integrity to inventory the communities of plants, fish, aquatic invertebrates, and amphibians in Sierran mountain meadows.

US Forest Service brings extensive experience in meadow assessment and planning, and in stakeholder processes. **Anne Yost** graduated with a Bachelor of Science degree in Range and Wildland Science from University of California, Davis. She has worked for the USDA Forest Service for over 30 years as a District and Forest Rangeland Management Specialist, Environmental Coordinator and Noxious Weed Coordinator. Currently she serves as the Regional Range Program Manager for the Pacific Southwest Region in Vallejo, California. **Jeff TenPas** is the Watershed Improvement Program Leader for the USDA Forest Service, Pacific Southwest Region. He has worked for the Forest Service as soil scientist and hydrologist and as a researcher with the Rocky Mountain Research Station since 1994. He holds an MS in Soil Science from University of California, Davis. **Dave Weixelman** is Regional Rangeland Ecologist for the Pacific Southwest Region of the USDA Forest Service in Vallejo, California. He holds a B.S. degree in botany and an M.S. degree in wildlife management from the University

of Alaska, Fairbanks. **Diana L. Craig** is the Regional Wildlife Ecologist for the Pacific Southwest Region. She has a bachelors degree in wildlife management and a masters degree in biology with a concentration in wildlife biology. Diana has worked as a wildlife biologist for the Forest Service since 1990. **Barry Hill** is the Regional Hydrologist for the USDA Forest Service Pacific Southwest Region. He holds a B.A. in Biology from the University of California, Santa Cruz, and an M.S. in Watershed Management from Humboldt State University. He has worked previously as a hydrologist for the U.S. Geological Survey and a geologist for the National Park Service.

South Yuba Citizens League will coordinate citizen monitors in the assessment and delineation tasks in the Yuba Watershed. **Gary Reedy**, SYRCL's River Science Director, has been working for more than a decade for watersheds and fish of the north coast region of California and Oregon. He received his BS in biology from UC Davis, and an MS in Fisheries from Humboldt State University.

The Foothill Conservancy will assist in reviewing and ground-truthing the health of meadows in their watershed and will also assist in developing a priority restoration list. **Chris Wright,** the Executive Director of the Foothill Conservancy, is coordinating the conservancy's current efforts to promote smart local land use planning, watershed restoration and conservation and Mokelumne River restoration and conservation. Wright received his bachelor of arts in liberal studies at Humboldt State University, with an emphasis on natural resource communication.

Other: Letters of Support

Attached are letters provided by the Evaluating and Prioritizing Meadow Restoration in the Sierra Project partners demonstrating their support of the project.

Stillwater Sciences

2855 Telegraph Avenue, Suite 400, Berkeley, CA 94705
phone 510.848.8098 fax 510.848.8398

June 1, 2009

Timothy Male, Ph.D.
Director, Wildlife and Habitat Conservation
National Fish and Wildlife Foundation, Suite 1100
1133 15th Street, NW
Washington, D.C. 20005

Dear Dr. Male,

Stillwater Sciences is writing to express support of project entitled *Evaluating and Prioritizing Meadow Restoration in the Sierra*, which is led by American Rivers. Stillwater Sciences has been working with the American Rivers lead project team for the last five years on meadow restoration and management in the Sierra Nevada. Our first grant was with the US Environmental Protection Agency and focused on developing an integrated monitoring protocol and database of meadows in the northern Sierra. The second phase of our work, funded by the California Department of Water Resources, was aimed at assessment and planning in the CABY IRWM Region of the Central Sierra Nevada.

Building on this previous work, this project proposes the following strategic next steps in meadow work in the Sierra: 1) development of an assessment protocol which will lead to consistent and comparable reporting of meadow restoration results; 2) development of long-term comparable data sets of key indicators; 3) review and ground-truthed verification of the status and health of meadows in the Yuba and Mokelumne River Watersheds; 4) understanding of how the implementation of a range of meadow restoration methods across the Sierra are most appropriately applied to yield maximum benefits; and 5) development of a multi-criteria prioritization methodology.

As more proposals come forth for meadow restoration in the Sierra, it is critical that we have a process for evaluating and prioritizing these proposals. This work will provide the necessary information and process to ensure that limited resources are spent most efficiently.

The Stillwater Sciences team is ready to take on the tasks allocated to us in the proposals, which include assisting in the development of a meadow assessment and a meadow prioritization methodology (steps 1 and 5, above), and assisting with the assessment of restoration methods (step 4, above). Our experience working on the previous Sierra Meadows projects and our expertise in applied vegetation science, geomorphology, hydrology, and river and wetland restoration will be enable us to provide key support for this project.

Lastly, as mentioned above we have direct experience working with this project team and are confident in our abilities to work together successfully. We urge the National Fish and Wildlife Foundation to support this worthwhile project.

Sincerely,

Derek Booth, PhD, PE, PG
President, Stillwater Sciences

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SYRCL SOUTH YUBA RIVER CITIZENS LEAGUE
216 Main Street, Nevada City, CA 95959
(530)265-5961 fax(530)265-6232 www.syrcl.org

June 1, 2009

To Whom It May Concern:

The South Yuba River Citizens League (SYRCL) is writing to express support of project entitled: *Evaluating and Prioritizing Meadow Restoration in the Sierra* which is led by American Rivers.

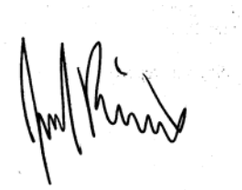
SYRCL has been working with the American Rivers project team for the last five years on the meadow restoration and management in the Sierra Nevada. Our work has focused on developing an integrated monitoring protocol for meadow health, field-testing it, and training volunteers to use it. Under this strategic next step, SYRCL will build on this previous work and assist with the ground-truthing of the meadows in the Yuba Watershed to determine their overall health and priority for restoration given a range of criteria.

This work is very important for the Yuba and for the Sierra as a whole. Given limited resources, it is critical that we develop sound methods for prioritization to guide our future restoration efforts.

SYRCL is ready to take on the tasks allocated to us in the proposals including activities associated with coordinating volunteers and implementing meadow delineations and assessments in the Yuba River Watershed.

Lastly, as mentioned above we have direct experience working with this project team and are confident in our abilities to work together successfully. We urge the National Fish and Wildlife Foundation to support this worthwhile project.

Sincerely,



Jason Rainey
Executive Director

United States Department of Agriculture
Forest Service
Tahoe National Forest
631 Coyote Street
Nevada City, CA
95959-2250
530-265-4531
530-478-6118 TDD
530-478-6109 FAX

File Code: 2610
Date: June 1, 2009

National Fish and Wildlife Foundation
1133 Fifteenth Street, N.W.
Suite 1100
Washington, D.C. 20005

To Whom It May Concern:

The Tahoe National Forest supports the project entitled: *Evaluating and Prioritizing Meadow Restoration in the Sierra,* which is led by the American Rivers National Conservation Organization. We are excited about continuing the work that American Rivers has been doing over the past five years in the Yuba River Watershed. Under this proposed meadow restoration project, the South Yuba River Citizens League and Tahoe National Forest will assist with the ground-truthing of the meadow assessments in the Yuba watershed.

This work is very important for the Yuba watershed and for the Sierra as a whole. Given limited resources, it is critical that we develop sound methods for prioritization to guide our future restoration efforts

We urge the National Fish and Wildlife Foundation to support this worthwhile project.

Sincerely,

TOM QUINN
Forest Supervisor

Statement of Litigation

Instructions: Save this document on your computer and complete. The final narrative should not exceed two (2) pages; do not delete the text provided below. Once complete, upload this document into the on-line application as instructed.

Litigation: In the space provided below, state any litigation (including bankruptcies) involving your organization and either a federal, state, or local government agency as parties. This includes anticipated litigation, pending litigation, or litigation completed within the past twelve months. Federal, state, and local government applicants are not required to complete this section. If your organization is not involved in any litigation, please state below.

American Rivers is involved in the following litigations:

- Trout Unlimited, et al. v. D. Robert Lohn (9th Cir.)
- NWF et al. v. NMFS et al., Civ. No. 01-0640 (Lead Case), CV 05-0023-RE (Consolidated Cases) (D. OR)
- Coeur Alaska, Inc. v. Southeast Alaska Conservation Council (Sup. Ct.)
- Central Valley Water Agency, et al. v. U.S. Fish and Wildlife Service, et al. (E.D. Cal.)